Winter 1-2021

2021 Update Mtg: Spring Frost and Optimal N Fertilzer Rates in 2nd Gen Hybrids

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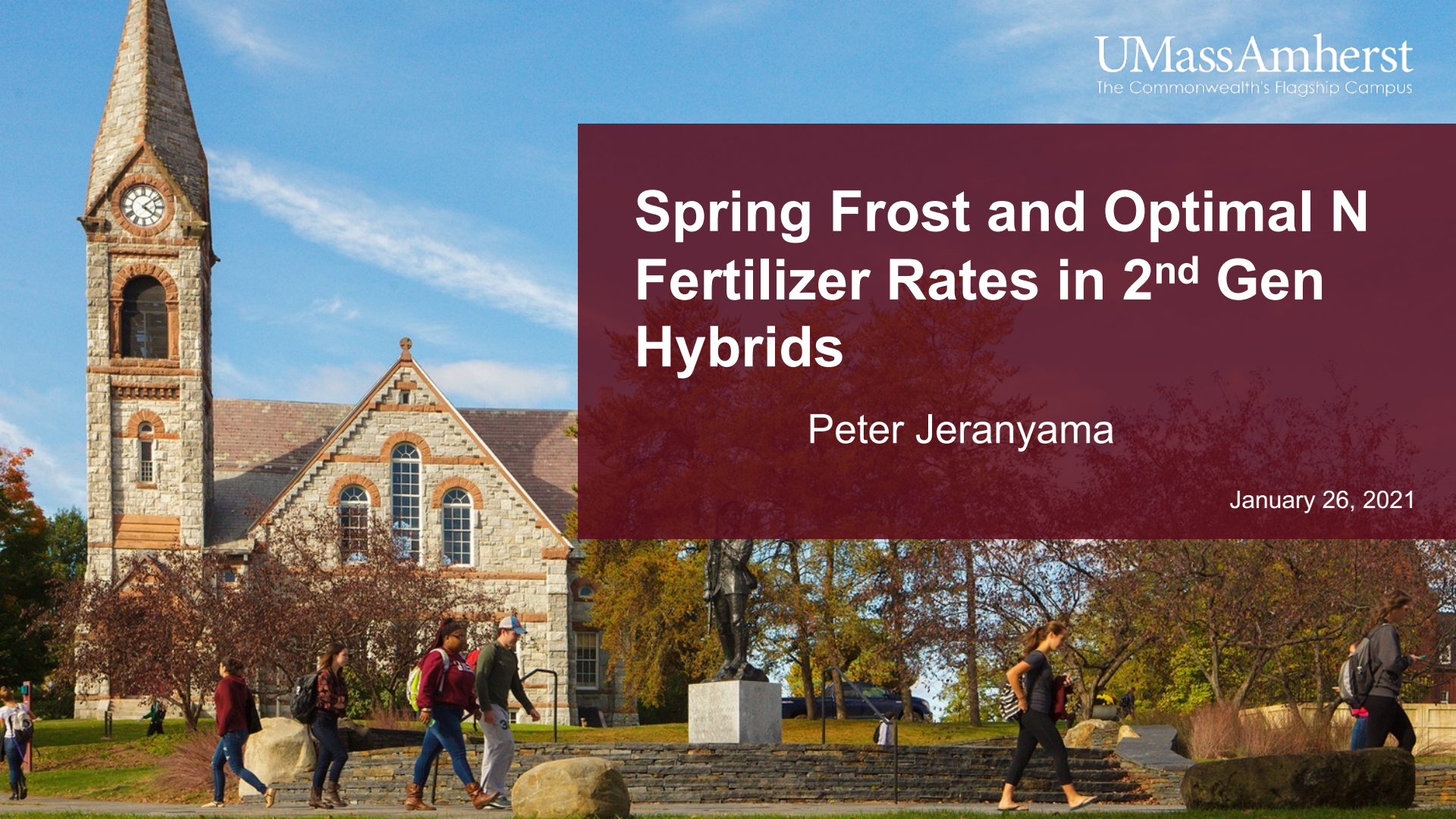

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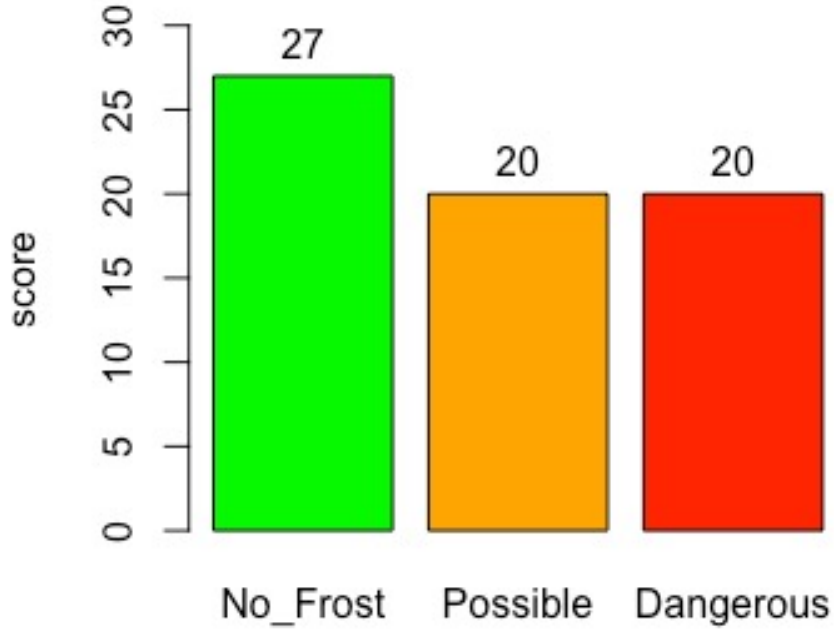
Peter Jeranyama

January 26, 2021

Spring frost frequency (67 days, 2020)



Optimal Nitrogen Fertilizer Rates in 2nd Gen Hybrids

Objectives

1. Develop N rate response curve for 2nd Gen hybrids and compare with native and 1st Gen hybrids
2. Determine effect of N rate on fruit yield and vegetative dry matter
3. Evaluate the effect of field fruit rot as influenced by fertilizer N rate
4. Determine effect of N rate on fruit quality (titratable soluble acids, firmness and TAcy).

Optimal Fertilizer N rates for 2nd Generation Hybrids

- N rates for natives and 1st generation hybrids are known
- No such rates exist for 2nd generation hybrids - Mullica Queen, DeMoranville or Crimson Queen
- 7 N rates (sub) x 5 cultivars (main) x 4 replications in a RCBD at State Bog

Fertilizer N rates and Cultivars

- N rates (**0, 40 = farmer, 50, 75, 100, 150 & 200** pounds of N/acre)
- Cultivars: **Howes** (native); **Steven** (1st Gen-Hybrid); 2nd Gen-Hybrids (**Crimson Queen, DeMoranville and Mullica Queen**)

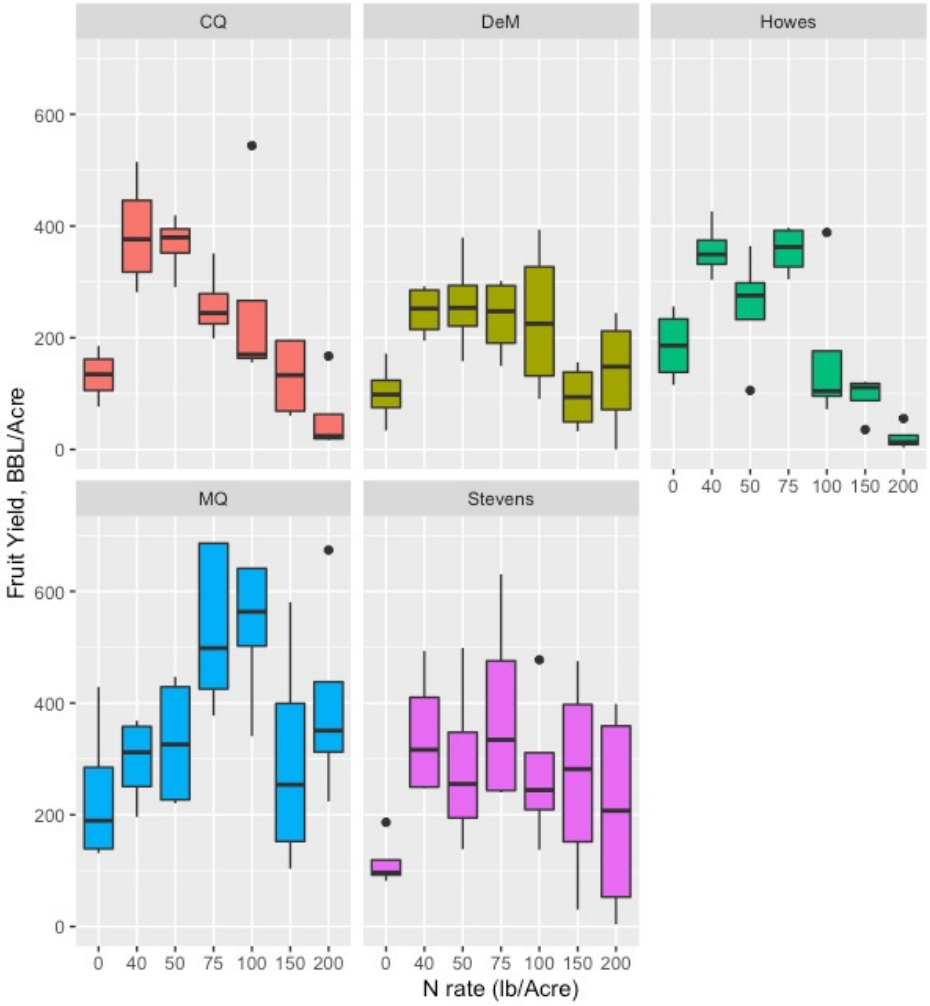
Phenology	Fertilizer Requirements	Rates (40 lb N/Ac)
Early leaf production	Moderate N for adequate upright length	13 lb (100 lb of 13-13-13) June 8, 2020
Fruit set	High demand for N	18lb (100 lb of 18-8-18) July 8, 2020
Bud set	Occurs during fruit set so supplemental N is needed	9 lb (50 lb of 18-8-18) Aug 3, 2020

Effect of 200 lb/Acre N on vines

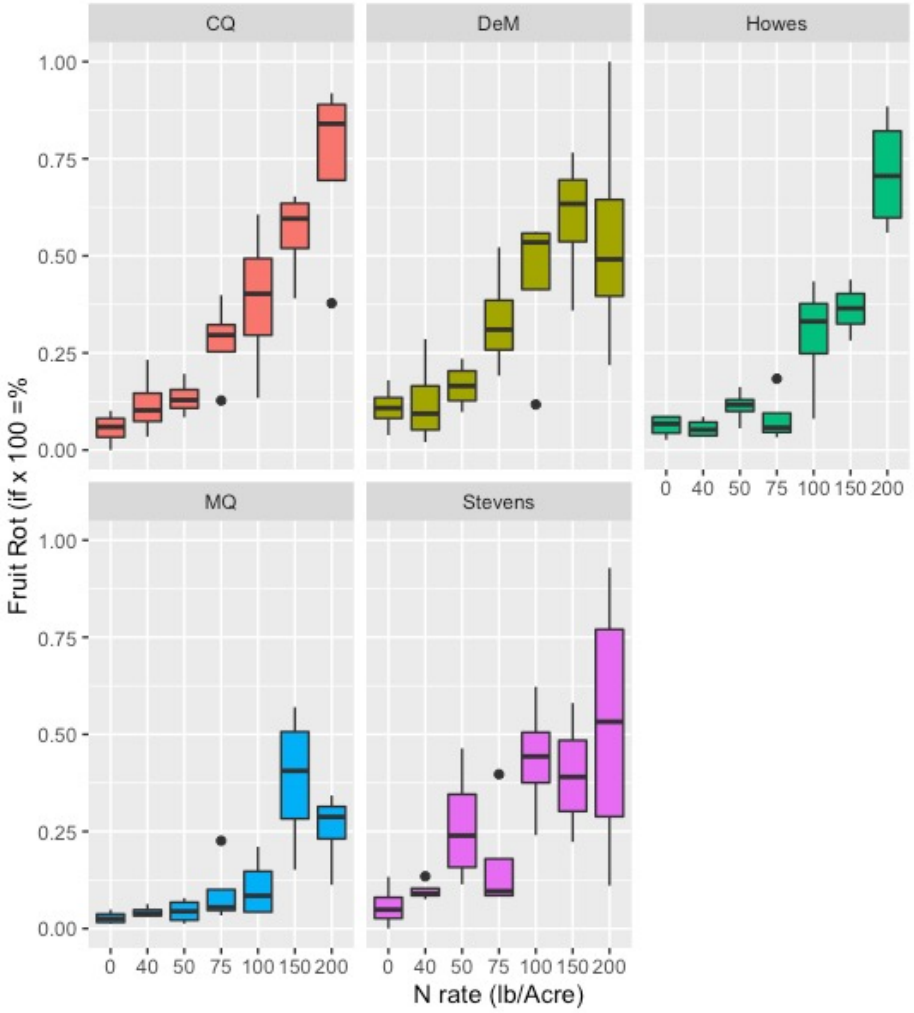
Crimson Queen

DeMoranville

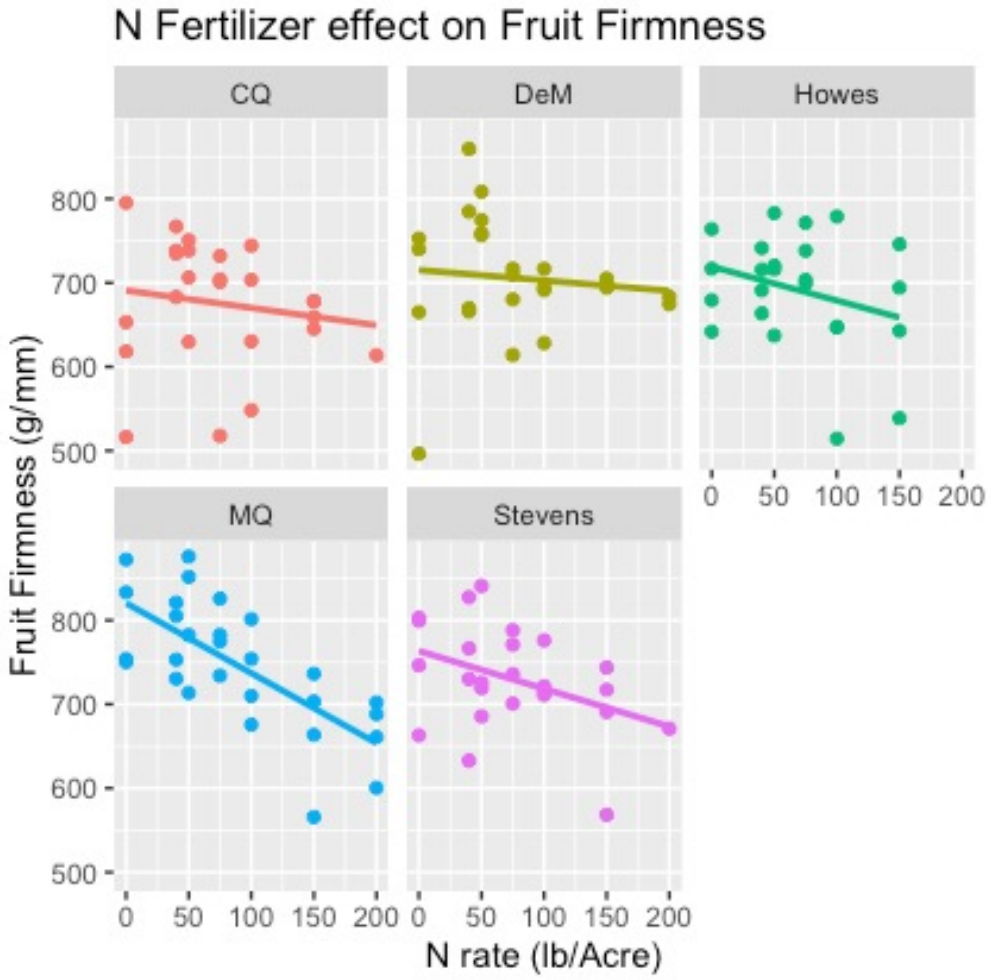
Mullica Queen



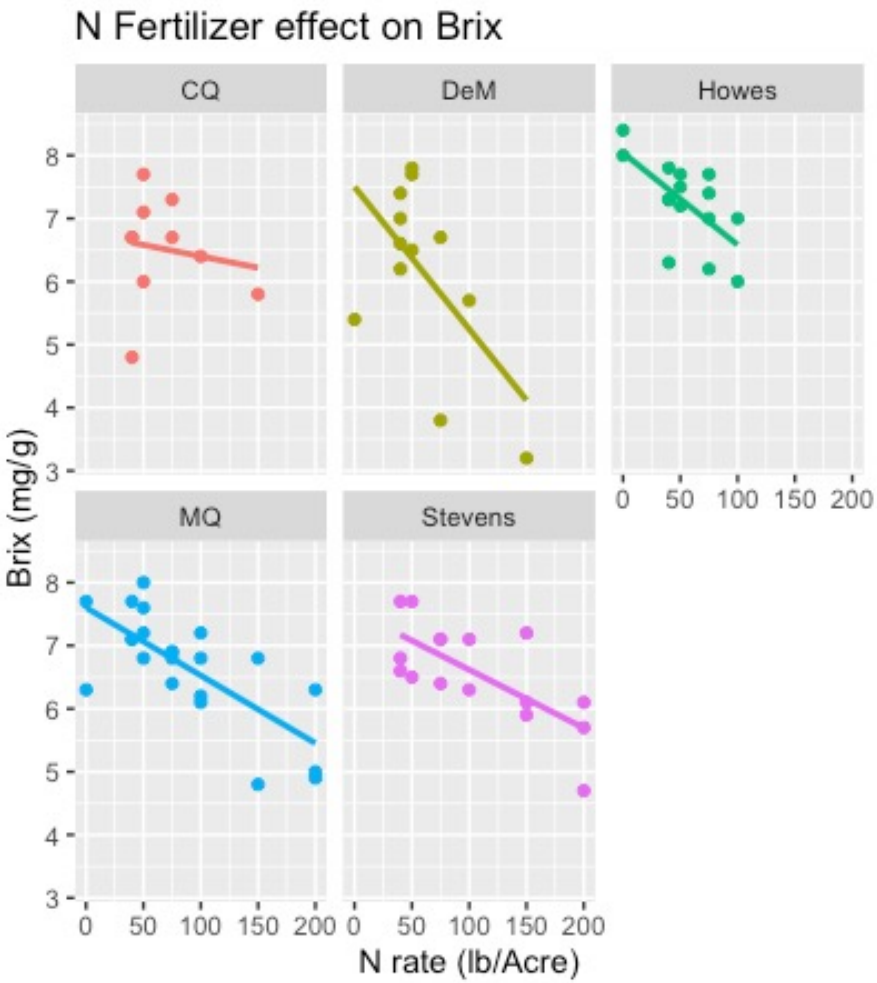
- ❑ >100 lb N/acre results in decreased fruit yield
- ❑ MQ – shows a clear optimum
- ❑ Howes – any rate >40 lb N/acre was a waste



Fruit rot increased with increase in N rate



- CQ and DeM – fruit firmness did not decrease much with N rate
- MQ, Stevens & Howes showed considerable decrease with N rate



Degree Brix – decreased in all cultivars with increase in N rate

Measure of maturity, flavor & sweetness

SUMMARY

- Fruit yield decreased >100 lb N/acre for 2nd-Gen hybrids; 50 lb N/ac for natives
- Vegetative biomass increased with N rate.
- Fruit rot increased with N rate
- Fruit firmness, Brix, Titratable acids decreased with N
- Fruit diameter-CQ & DM increased, others declined with N.

ACKNOWLEDGMENTS

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2. Orlie Jeranyama
3. Nancy DeMoranville
4. Rayan Jahrling